Multiple Choice Questions

1. **The process by which heat travels through solids without the movement of particles is called**
   (a) Radiation
   (b) Convection
   (c) Conduction
   (d) Reflection

2. **Materials such as wood and glass are**
   (a) Good conductors of heat
   (b) Poor conductors of heat
   (c) Excellent radiators of heat
   (d) Sources of heat

3. **When water is heated in a beaker, it gets heated mainly due to**
   (a) Conduction
   (b) Radiation
   (c) Evaporation
   (d) Convection

4. **Sea breeze occurs during the day because**
   (a) Sea heats up faster than land
   (b) Land heats up faster than sea
   (c) Sea cools faster than land
   (d) Land and sea heat equally

5. **Heat from the Sun reaches the Earth by**
   (a) Conduction
   (b) Reflection
   (c) Radiation
   (d) Convection

6. **Dark-coloured clothes are preferred in winters because they**
   (a) Reflect heat
   (b) Absorb more heat
   (c) Block heat transfer
   (d) Do not allow radiation

7. **The continuous movement of water between Earth and the atmosphere is called**
   (a) Transpiration
   (b) Precipitation
   (c) Water cycle
   (d) Groundwater recharge

8. **Water seeps fastest through**
   (a) Clay
   (b) Sand
   (c) Gravel
   (c) Soil with no spaces

9. **The underground layer that stores groundwater is called**
   (a) Aquifer
   (b) Glacier
   (c) Reservoir
   (d) Lake bed

10. **The movement of cooler air from land to sea at night is called**
(a) Sea breeze
(b) Land breeze
(c) Hot wind
(d) Air cycle

Fill in the blanks :

11. The transfer of heat in solids takes place by _____.

12. Materials that do not allow heat to pass easily are called _____.

True / False

13. Conduction is the transfer of heat through direct contact between particles.

14. Air is a good conductor of heat.

Very Short Type Questions

15. What is conduction?

16. What is precipitation in the water cycle?

Short Type Questions

17. Why does sea breeze occur during the daytime?

18. Why are woollen clothes preferred in winter?

Essay Type Questions

19. Explain the three modes of heat transfer with examples.

20. Describe the water cycle and its importance in maintaining water availability on Earth.

HOTS

21. **Assertion (A):** Sea breeze makes coastal areas cooler during the day.
Reason (R): Water heats up faster than land during the day.
Choose the correct option:
a) Both A and R are true and R is the correct explanation of A
b) Both A and R are true but R is not the correct explanation of A
c) A is true but R is false
d) A is false but R is true

1. **(c)** Conduction
2. **(d)** Sources of heat
3. **(b)** Radiation
4. **(d)** Land and sea heat equally
5. **(c)** Radiation
6. **(b)** Absorb more heat
7. **(c)** Water cycle
8. **(c)** Gravel
9. **(a)** Aquifer
10. **(b)** Land breeze
11. Conduction
12. Insulators
13. TRUE
14. FALSE
15. Conduction is the process in which heat is transferred from the hotter part of a solid to the colder part without any actual movement of the particles.
16. Precipitation is the process in which condensed water vapour falls back to the Earth in the form of rain, snow or hail.
17. During the day, land heats up faster than the sea. The warm air above the land rises, creating a low-pressure area. Cooler air from the sea moves in to replace it, creating a sea breeze. This movement of cool air makes coastal areas more comfortable during hot days.
18. Woollen clothes trap air in the tiny spaces between their fibres. Since air is a poor conductor of heat, it prevents body heat from escaping to the surroundings. This keeps the body warm even in very cold weather.
19. Heat is transferred in three ways—conduction, convection and radiation.
In conduction, heat travels through solids when particles pass energy to neighbouring particles without changing their positions. For example, in the metal strip experiment shown on page 90, pins fall one by one as heat moves along the strip.
In convection, heat transfer occurs through the actual movement of liquids or gases. When water is heated in a beaker, as shown on page 94, the hot water rises and the cooler water moves down to take its place, forming a convection current.
In radiation, heat travels directly from a hot object without needing any medium. The Sun heating the Earth or the warmth felt from a fire (page 96) are examples of radiation. These three processes help us understand how heat moves naturally around us.

20. The water cycle is the continuous movement of water between the Earth and the atmosphere. It begins when water from oceans, lakes, rivers and other water bodies gets heated by the Sun and changes into water vapour. This process is called evaporation. Plants also release water vapour into the air through transpiration. As the vapour rises higher in the atmosphere, it cools down and condenses to form tiny droplets which gather to form clouds. When these droplets become too heavy, they fall back to the Earth as precipitation in the form of rain, snow or hail.

After precipitation, some of the water flows over the surface into rivers and seas, while some seeps into the ground to become groundwater. This groundwater collects in aquifers and can be used by wells and handpumps. Eventually, the water returns to oceans and lakes, and the cycle continues endlessly.

The water cycle is extremely important because it ensures that water is constantly purified, recycled and redistributed across different parts of the Earth. It replenishes groundwater, maintains the flow of rivers, supports plant and animal life and helps regulate temperature. Without the water cycle, the Earth would quickly run out of usable water, making life impossible.

21. Correct Answer: (C)

Explanation:

The assertion is true because sea breeze brings cool air from the sea to the land. The reason is false because land heats up faster than water, not the other way around. Therefore, the reason does not explain the assertion.